RECOMMENDATIONS FOR UPGRADE OF THE INFORMATION SYSTEM LANDS AND SURVEY DEPARTMENT AND FISHERIES DEPARTMENT MINISTRY OF NATURAL RESOURCES, FUNAFUTI, TUVALU

Leslie Allinson
SOPAC Secretariat

March 1996 *SOPAC Miscellaneous Report 225*

This project was was funded by the European Union

CONTENTS

1. ACKNOWLEDGMENT 1
2. INTRODUCTION 1
3. OBJECTIVES 1
3. TASKS COMPLETED 2
4. UPGRADE 3
4.1. Benefits 3
4.2. Implementation 3
4.2.1. Hardware upgrade 4
4.2.2. Hardware network 4
4.2.3. Software 4
4.2.4. Freight 5
4.2.5. Installation and training 5
4.3. Timing 5
4.4. Maintenance 5
4.4.1. Hardware 5
4.4.2. Software 6
4.5. Suppliers 6
5. SUMMARY 6
5.1. Recommendations 7
ATTACHMENT A - SUMMARY AND DETAILED COSTS 8

1. ACKNOWLEDGMENT

The author wishes to acknowledge the invaluable assistance provided by the European Union under the South Pacific Marine Resources Program which has provided the computer based equipment for use by the Ministry of Natural Resources, Tuvalu and all other ACP-SOPAC member countries as well as supporting the position of Information Technology Manager.

2. INTRODUCTION

Member countries need access to up-to-date tools which will provide accurate and timely information to assist in policy making and which will allow for the maximum economic benefits to be achieved through the responsible management of their natural resources.

The area of Information Systems is one of the most important of these tools for analysing the large amount and various types of data which comprise the input to the government sectors of the Pacific Island states responsible for natural resource management and environmental monitoring.

An upgraded Information System can achieve outputs and outcomes which are detailed in the following section while a description of the specific tools which comprise the upgrade is outlined in the Implementation section.

This report was prepared following a visit to Land & Survey Department and Fisheries Department, Ministry of Natural Resources as well as the Public Works Department, Tuvalu in March 1996.

3. OBJECTIVES

The tools required should have the ultimate goal of creating the following outputs:

- Production of maps and drawings
- Analysis of land use
- Shared documents and data
- Organised and accessible databases

which can be achieved through a networked information system which features:

- sharing of data and applications.
  - Geographic Information System
    - Bathymetry data
    - Coastal zone data
    - Offshore mineral resource data
    - Cadastral data
  - library holdings
  - contacts
  - reports
  - common documents and forms
  - electronic mail
  - accounting system
  - install new or updated software on user's workstation

- sharing of resources such as high-cost peripherals which can be connected to the network and accessed by all users where these peripherals will include.
    - high speed modems
    - CD-ROM drives
    - colour printers and plotters
    - high speed laser printers

3. TASKS COMPLETED

The EU-funded computer equipment has been relocated from the Public Works Department to the Lands & Survey Department in an area where there is already a computer and laser printer and the equipment upgraded as follows:

Compaq Prolinea 4/33 desktop computer (SOPAC):
- Upgrade processor from 33 to 66 MHz
- Upgrade hard drive from 240 MB to 540 MB
- Install CD-ROM and SoundBlaster card
- Install Windows 95 from CD
- Install MapInfo 4.0 from CD
- Install Norton Utilities 95
- Install McAfee 95 2.2.2

Upgrade HP Vectra VE 4/66 desktop computer
- Install extra 4MB RAM. Total 12MB
- Install MapInfo 4.0 from disks
- Install FastLynx
- Install Norton Utilities 7.0 via FastLynx
- Install McAfee 2.6.6 as per standard in Tuvalu

Upgrade HP Laserjet 5P
- Install extra 4MB RAM. Total 6MB

Provide Virtual Tablet Interface 3.01 manual and software

Following upgrades, the equipment inventory at Lands & Survey Department includes:

1 only	Compaq Prolinea 486166 16MB RAM 540MB HDD 1.44MB FDD, CD-ROM drive and sound card NEC 4FG 15" monitor
1 only	HP Vectra VE 486/66 12MB RAM 420MB HDD 1.44MB FDD HP Super VGA 14" monitor
1 only	HP Laserjet 5P printer 6MB RAM
1 only	American Power Conversion Smart-UPS 600VA

The computers have been set up as follows:

Compaq Prolinea 486166
- Windows 95
- Microsoft Office Professional 4.3 (Word 6, Excel 5, PowerPoint 5 and Access 2)
- Microsoft Project 3.0
- MapInfo 4.0
- ABC Flowcharter 2.0
- Geographic Calculator 1.06
- Norton Utilities 95

FastLynx 2.0
PKWare 2.04
McAfee 95 2.2.2

HP Vectra VE 486/66
Microsoft DOS 6.22
Windows 3.11
Microsoft Office 4.3 (Word 6, Excel 5 and PowerPoint 5)
MapInfo 4.0
Norton Utilities 7.0
FastLynx 2.0
PKWare 2.04
McAfee 2.6.6

4. UPGRADE

This section describes the benefits from and implementation rationale and timing for the proposed upgrade. Costs are summarised as well as being fully detailed in attachment A.

4.1. Benefits

The benefits from the upgrade are as follows:

- resource and data sharing through a peer-to-peer network.
- maintenance of regional standards adopted by the resources sector of member country governments.
- adherence to Windows based applications which provide ease of learning and use through a consistent graphical interface.

4.2. Implementation

A single phase implementation is sufficient within Fisheries and Lands & Survey Department and Fisheries Department.

This should achieve resource and data sharing within both Departments through a peer-to-peer network and upgrading of existing equipment. A schematic of the peer-to-peer network is shown in Figure 1 and summary costs are listed in Table 1 for Lands & Survey Department and Fisheries Department while detailed costs are provided in Attachment A.

Figure 1 - peer-to-peer network

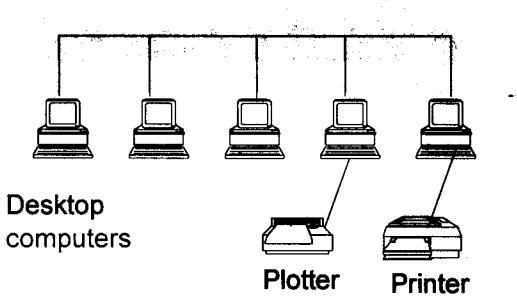

Table 1 -Summary - Lands & Survey and Fisheries Department

	Lands AUD	Fisheries AUD	Total AUD
Hardware upgrade	650	1,450	2,100
Hardware network	1,302	1,302	2,604
Software	950	1,900	2,850
Freight estimate 10%	290	465	755
TOTAL	3,192	5,117	8,309

Details of each summary line item are as follows.

4.2.1. Hardware upgrade

Lands & Survey

This provides a CD drive and an additional 8 MB RAM for the HP Vectra VE. The extra RAM is essential for desktop mapping and GIS while the CD provides a second unit in the Department. It should be noted that the majority of software and data is provided on CD.

Fisheries

This provides a CD drive for each HP Vectra VL2 and a sound card for one unit. Both Vectras will need an additional 8 MB RAM which is essential for desktop mapping and GIS.

4.2.2. Hardware network

Lands & Survey - Fisheries

This item includes procurement of all the network components. The use of ThinLan is recommended for small networks with finite numbers of computers and where the environment is harsh. All network interface cards and the PCMCA adaptor are combo models which allow connection to both ThinLan (10 Base-2) and Unshielded Twisted Pair (10 Base-T) cabled networks. The cable lengths can be cut on site and crimp connected fixed a staff member with technical ability. The PCMCA adaptors allow the Toshiba notebooks to be connected to the network.

4.2.3. Software

Lands & Survey - Fisheries

Microsoft Office 95 Professional will provide an improved interface for those computers running Windows 95 while Norton 95 provides the security and recovery features necessary for robust operations. A second copy of Windows 95 on diskette will allow installation on non-networked and non CD units. Norton Utilities 95 is the accepted tools for security and repair.

MapInfo 4.0 is an upgrade and the serial number of MapInfo 3.0 will be needed when ordering.

The Windows Resource Kit will provide the necessary additional information for users requiring more detailed understanding of Windows 95 internals while the step by step book series are an accepted learning tool.

4.2.4. Freight

Lands & Survey - Fisheries

An estimate of 10% is reasonably accurate for shipping computer equipment from Australia.

4.2.5. Installation and training

Correct installation and training is critical for the success of the implementation of the information system and no budget line item has been identified for a visit by a specialist. It is anticipated that there may be funding available under the Urban Planning and Environment Management Project which is being implemented under TA funding from ADB.

The anticipated time to setup networks and provide training at both Departments is two weeks and the estimated cost is as follows:

Table 2 - Estimated network installation costs

	USD
2 weeks at USD 9,000 per month	4,500
2 weeks per diem at USD 100 per day	1,400
International travel	1,000
	6,900

It is recommended that the Ministry seek additional funds from relevant projects to implement the two networks.

4.3. Timing

The upgrade should be completed within 2 months.

Apr 1996 Secure funding
Final quotations
Place orders

May 1996 Receive equipment
Visit specialist from SOPAC to set up networks
Staff training
Upgrade complete

4.4. Maintenance

4.4.1. Hardware

All hardware equipment recommended should have 12 months minimum warranty. In the case of any Compaq and HP equipment there is a twelve month parts and labour and a further two years parts. In the majority of island countries where there is no authorised service centre it is normal for any faults to be identified at the sub-assembly level and replacement parts be sent from the supplier by airmail, replaced in-house by a suitably experienced person and the failed part returned by airmail.

It has been shown by experience over the past 6 years that it is better to deal with a single supplier and the closest supplier and to purchase name brands for major items such as desktop and notebook computers, monitors and printers.

4.4.2. Software

It is extremely rare for software to fail. The most likely fault will be damage to a disk during installation which is why it is essential to make copies **before** any installation.

4.5. Suppliers

Suppliers of services and computer equipment who have provided good service at competitive prices are listed below.

All equipment

Tunsuna Pty Ltd
32A Somerset Avenue
North Turramura NSW 2074
Australia

Tel: +61 2 447483
Fax: +61 2 446865

Peter Carry
John Mamacan

E-mail: peterc@world.net

MapInfo

Critchlow Associates Ltd
Level 10, Todd Building
Cnr Lambton Quay & Brandon St
PO Box 4103
Wellington
New Zealand

Tel: +64 4 4728244
Fax: +64 4 4726695

Steve Critchlow

5. SUMMARY

Land & Survey and Fisheries are the departments responsible for the acquisition of natural resource and environment data which is crucial for the success of resource management as well as the study of environment. The benefits from access to accurate and timely data will greatly assist the departments in achieving these goals and can be undertaken by upgrading the basic computing facilities at an appropriate central location.

The upgrade will provide resource and data sharing within the departments and can be achieved by the provision of a peer-to-peer network and other tools necessary for enhanced operations where the costs are summarised in Table 3.

Table 3 - Upgrade summary

	AUD
Lands & Survey Department	3,192
Fisheries Department	5,117
	8,309

5.1. Recommendations

1. Funding be identified for the upgrade and the equipment be procured as soon as possible.

2. Equipment procured should be a name brand and purchased from a reputable supplier.

3. A staff member be identified and be responsible for assisting in the upgrade.

4. That staff member be designated as the IT specialist within the Ministry.

5. The Toshiba T2130CS with non operational in-built Acupoint mouse from Fisheries Department should be returned to Tunsuna (formerly ACE Technology) and a Toshiba specific operating system be installed. Either Windows 3.11 or Windows 95 where the latter is preferred for ease of use of PCMCA devices,

6. An inventory of aerial photographs, Ordinance Survey mapsheets and UNDP mapsheets be created as Access databases. This could be started as an Excel workbook where the data for mapsheets should include projection, datum and scale. This will enable reports to be provided to the public, consultants and other government departments.

7. Dialogue be maintained with Tuvalu Telecom Corporation to enable the Ministry to access Internet e-mail as early as possible. This will reduce international telecommunication costs through replacing fax transmissions with Internet e-mail as well as providing inter department e-mail.

8. The Ministry should consider acquiring a large format digitising table (GTCO A0) and large format printer (HP Designjet 650) for the Lands & Survey Department under the Urban Planning and Environment Management Project.

9. The consultants implementing the ADB-funded Urban Planning and Environment Management Project be requested to consult with SOPAC before recommending or acquiring and hardware or software for Lands & Survey Department as it is expected that SOPAC will provide ongoing support in the area of Mapping and GIS.

NOTES

All costs are given in Australian dollars (AUD).

ATTACHMENT A - SUMMARY AND DETAILED COSTS

RECOMMENDATION FOR UPGRADE OF INFORMATION SYSTEM
LANDS & SURVEY DEPARTMENT, TUVALU

UPGRADE - DETAILED EQUIPMENT LIST

NO	ITEM	SUPPLIER CODE	UNIT AUD	TOTAL AUD
HARDWARE UPGRADE				
1	CD drive for HP Vectra VE	TU	250.00	250.00
1	Extra 8MB RAM for HP Vectra VE	TU	400.00	400.00
				650.00
HARDWARE NETWORK				
1	Xircom PCMCA network adaptor combo	TU	300.00	300.00
4	Intel EtherExpress combo NIC	TU	180.00	720.00
1	Cable ThinLan 100 m	TU	100.00	100.00
10	ThinLan BNC crimp connectors	TU	5.00	50.00
5	ThinLan BNC tee connectors	TU	8.00	40.00
4	ThinLan BNC 50 ohm terminator	TU	8.00	32.00
1	ThinLan BNC crimp tool	TU	60.00	60.00
				1,302.00
SOFTWARE				
1	Microsoft Office 95 Professional CD	TU	600.00	600.00
1	Norton Utilities 95	TU	200.00	200.00
1	Microsoft Windows 95 Resource Kit	TU	100.00	100.00
1	Microsoft Windows 95 Step by Step book	TU	50.00	50.00
				950.00
	TOTAL			2,902.00

UPGRADE - SUMMARY BY EQUIPMENT

	AUD
Hardware upgrade	650
Hardware network	1,302
Software	950
Freight estimate 10%	290
TOTAL	3,192

RECOMMENDATION FOR UPGRADE OF INFORMATION SYSTEM
FISHERIES DEPARTMENT, TUVALU

UPGRADE - DETAILED EQUIPMENT LIST

NO	ITEM	SUPPLIER CODE	UNIT AUD	TOTAL AUD
HARDWARE UPGRADE				
2	CD drive for HP Vectra VL2	TU	250.00	500.00
1	Sound card for HP Vectra VL2 + speakers	TU	150.00	150.00
2	Extra 8MB RAM for HP Vectra VL2	TU	400.00	800.00
				1,450.00
HARDWARE NETWORK				
1	Xircom PCMCA network adaptor combo	TU	300.00	300.00
4	Intel EtherExpress combo NIC	TU	180.00	720.00
1	Cable ThinLan 100 m	TU	100.00	100.00
10	ThinLan BNC crimp connectors	TU	5.00	50.00
5	ThinLan BNC tee connectors	TU	8.00	40.00
4	ThinLan BNC 50 ohm terminator	TU	8 00	32.00
1	ThinLan BNC crimp tool	TU	60.00	60.00
				1,302.00
SOFTWARE				
1	MapInfo 4.0 upgrade	CA	800.00	800.00
1	Microsoft Windows 95 on Disk	TU	150.00	150.00
1	Microsoft Office 95 Professional CD	TU	600.00	600.00
1	Norton Utilities 95	TU	200.00	200.00
1	Microsoft Windows 95 Resource Kit	TU	100.00	100.00
1	Microsoft Windows 95 Step by Step book	TU	50.00	50.00
				1,900.00
	TOTAL			4,652.00

UPGRADE - SUMMARY BY EQUIPMENT

	AUD
Hardware upgrade	1,450
Hardware network	1,302
Software	1,900
Freight estimate 10%	465
TOTAL	5,117

SUPPLIER CODES
CA Critchlow Associates, New Zealand
TU Tunsuna, Australia